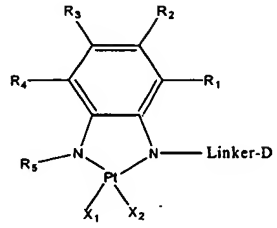
CLAIMS

1. A composition comprising the formula:



wherein:

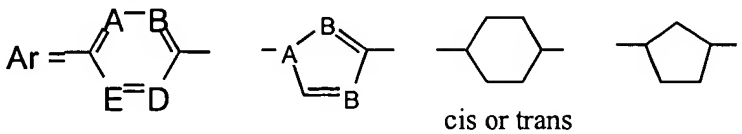
R_1-R_5 may be the same or different and are independently selected from the group consisting of H, alkyl (1 to 10 carbon atoms), benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_6, -(C=O)OR_6, or -OCH_2(C=O)R_6 and a salt, wherein R_6 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X_1 and X_2 may be the same or different and X is a leaving group; and

linker is a moiety joining a nitrogen to a detectable marker, D.

2. The composition of claim 1, wherein said leaving group is selected from the group consisting of NO_3, halogen CN, $OCOR_7$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5 – demethyl-phenyl–4-sulfate, wherein R_7 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_6, -(C=O)OR_6, -OCH_2(C=O)R_6 and a salt.

3. The composition of claim 1 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH{=}CH)_mO(CH{=}CH)_p(CH_2)_q$, $CO(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

4. The composition of claim 1 wherein the detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

5. A nucleic acid comprising a composition of claim 1.

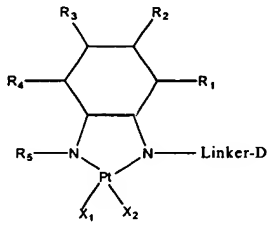
6. The nucleic acid of claim 5 wherein said composition forms a non-covalent adduct with said nucleic acid.

7. A probe comprising a composition of claim 1.

8. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 1 with said nucleic acid.

9. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 6 and detecting signal from said detectable marker.

10. A composition comprising the formula:



wherein:

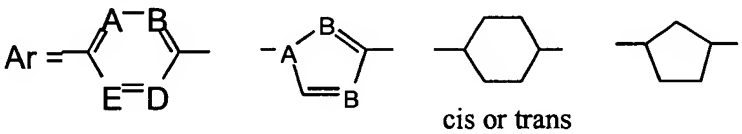
R_1- R_5 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_6, -(C=O)OR_6, or -OCH_2(C=O)R_6 and a salt, wherein R_6 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X_1 and X_2 may be the same or different and X is a leaving group; and

linker is a moiety joining a nitrogen to a detectable marker, D.

11. The composition of claim 10, wherein said leaving group is selected from the group consisting of NO_3, halogen, CN, $OCOR_7$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_7 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_6, -(C=O)OR_6, -OCH_2(C=O)R_6 and a salt.

12. The composition of claim 10 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH{=}CH)_mO(CH{=}CH)_p(CH_2)_q$, $CO(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

13. The composition of claim 10 wherein the detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

14. A nucleic acid comprising a composition of claim 10.

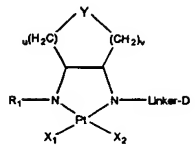
15. The nucleic acid of claim 14 wherein said composition forms a non-covalent adduct with said nucleic acid.

16. A probe comprising a composition of claim 10.

17. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 10 with said nucleic acid.

18. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 15 and detecting signal from said detectable marker.

19. A composition comprising the formula:



wherein

Y is selected from the group consisting of O, S, and C;

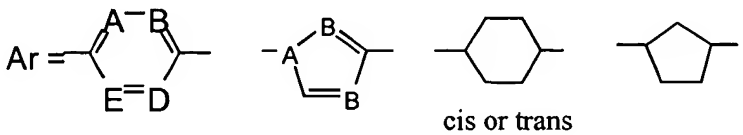
R_1 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_2, -(C=O)OR_2, -OCH_2(C=O)R_2, and a salt, wherein R_2 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X_1 and X_2 are the same or different and X is a leaving group;

linker is a moiety joining a nitrogen to a detectable marker, D, and u and v are the same or different and are an integer from 1 to 10.

20. The composition of claim 19, wherein said leaving group is selected from the group consisting of NO_3, halogen, CN, $OCOR_3$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_3 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_2, -(C=O)OR_2, or -OCH_2(C=O)R_2 and a salt.

21. The composition of claim 19 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH=CH)_mO(CH=CH)_p(CH_2)_q$, $CO(CH_2)_n(CH=CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH=CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

22. The composition of claim 19 wherein said detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

23. A nucleic acid comprising a composition of claim 19.

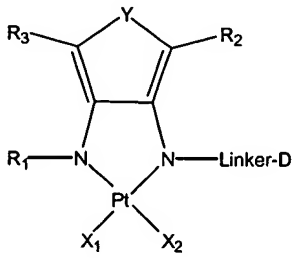
24. The nucleic acid of claim 23 wherein said composition forms a non-covalent adduct with said nucleic acid.

25. A probe comprising a composition of claim 19.

26. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 19 with said nucleic acid.

27. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 25 and detecting signal from said detectable marker.

28. A composition comprising the formula:



wherein:

-Y is selected from the group consisting of O, S, and C;

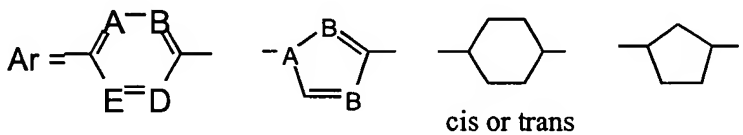
R_1-R_3 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_4, -(C=O)OR_4, or -OCH_2(C=O)R_4 and a salt, wherein R_4 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X_1 and X_2 are the same or different and X is a leaving group; and

linker is a moiety joining a nitrogen to a detectable marker, D.

29. The composition of claim 28, wherein said leaving group is selected from the group consisting of No_3, halogen, CN, $OCOR_5$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate wherein R_5 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_4, -(C=O)OR_4, -OCH_2(C=O)R_4 and a salt.

30. The composition of claim 28 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH{=}CH)_mO(CH{=}CH)_p(CH_2)_q$, $CO(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

31. The composition of claim 28 wherein said detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

32. A nucleic acid comprising a composition of claim 28.

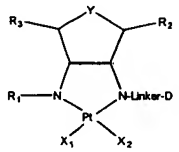
33. The nucleic acid of claim 32 wherein said composition forms a non-covalent adduct with said nucleic acid.

34. A probe comprising a composition of claim 28.

35. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 28 with said nucleic acid.

36. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 34 and detecting signal from said detectable marker.

37. A composition comprising the formula:



wherein:

Y is selected from the group consisting of O, S, and C;

R_1-R_3 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_4, -(C=O)OR_4, or -OCH_2(C=O)R_4 and a salt, wherein R_4 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

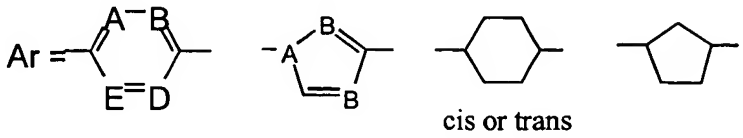
X_1 and X_2 are the same or different and X is a leaving group; and

linker is a moiety joining a nitrogen to a detectable marker, D.

38. The composition of claim 37, wherein said leaving group is selected from the group consisting of No_3, halogen, CN, $OCOR_5$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_5 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_4, -(C=O)OR_4, -OCH_2(C=O)R_4 and a salt.

39. The composition of claim 37 wherein said linker is selected from the group consisting of: (CH_2)n, $(CH_2)_n(CH{=}CH)_mO(CH{=}CH)_p(CH_2)_q$, $CO(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n,

p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

40. The composition of claim 37 wherein said detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

41. A nucleic acid comprising a composition of claim 37.

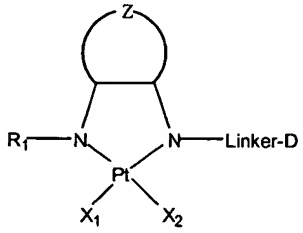
42. The nucleic acid of claim 41 wherein said composition forms a non-covalent adduct with said nucleic acid.

43. A probe comprising a composition of claim 37.

44. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 37 with said nucleic acid.

45. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 43 and detecting signal from said detectable marker.

46. A composition comprising the formula



wherein

Z is selected from the group consisting of $(CH_2)n$, and $(CH_2)nO(CH_2)m$, wherein m and n are integers from 2 to 8, inclusive;

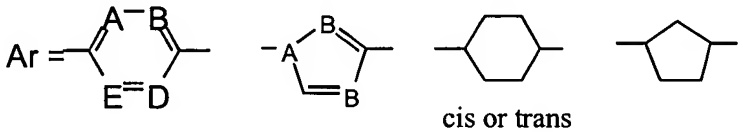
R_1 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_2, -(C=O)OR_2, or -OCH_2(C=O)R_2 and a salt, wherein R_2 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X_1 and X_2 are the same or different and X is a leaving group; and

linker is a moiety joining a nitrogen to a detectable marker, D.

47. The composition of claim 46, wherein said leaving group is selected from the group consisting of No_3, halogen, CN, OCOR_3, OCO-Phenyl, O$COCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_3 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_2, -(C=O)OR_2, -OCH_2(C=O)R_2 and a salt.

48. The composition of claim 46 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH=CH)_mO(CH=CH)_p(CH_2)_q$, $CO(CH_2)_n(CH=CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH=CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



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and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

49. The composition of claim 46 wherein said detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

50. A nucleic acid comprising a composition of claim 46.

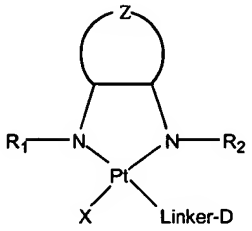
51. The nucleic acid of claim 50 wherein said composition forms a non-covalent adduct with said nucleic acid.

52. A probe comprising a composition of claim 46.

53. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 46 with said nucleic acid.

54. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 52 and detecting signal from said detectable marker.

55. A composition comprising the formula



wherein

Z is selected from the group consisting of $(CH_2)_n$, and $(CH_2)_nO(CH_2)_m$, wherein m and n are integers from 2 to 8, inclusive;

R_1 and R_2 may be the same or different and are selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_3, -(C=O)OR_3, or -OCH_2(C=O)R_3 and a salt, wherein R_3 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

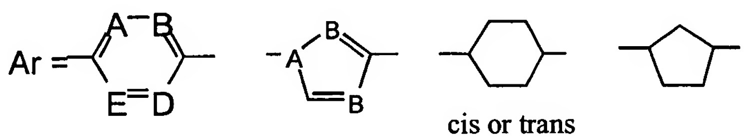
X_1 is a leaving group; and

linker is a moiety joining a detectable marker, D to the platinum ion.

56. The composition of claim 55, wherein said leaving group is selected from the group consisting of NO_3, halogen, CN, OCOR_4, OCO-Phenyl, O$COCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_4 is selected from the group consisting of H, methyl,

benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_3, -(C=O)OR_3, -OCH_2(C=O)R_3 and a salt.

57. The composition of claim 55 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH=CH)_mO(CH=CH)_p(CH_2)_q$, $CO(CH_2)_n(CH=CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH=CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

58. The composition of claim 55 wherein said detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

59. A nucleic acid comprising a composition of claim 55.

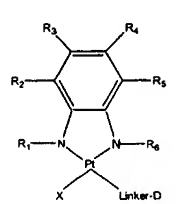
60. The nucleic acid of claim 59 wherein said composition forms a non-covalent adduct with said nucleic acid.

61. A probe comprising a composition of claim 55.

62. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 55 with said nucleic acid.

63. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 61 and detecting signal from said detectable marker.

64. A composition comprising the formula:



wherein:

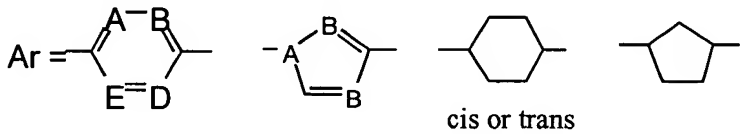
R_1-R_6 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_7, -(C=O)OR_7, or -OCH_2(C=O)R_7 and a salt, wherein R_7 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X is a leaving group; and

linker is a moiety joining a detectable marker, D to the platinum ion.

65. The composition of claim 64, wherein said leaving group is selected from the group consisting of No_3, halogen, CN, $OCOR_8$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_8 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_7, -(C=O)OR_6, -OCH_2(C=O)R_7 and a salt.

66. The composition of claim 64 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH{=}CH)_mO(CH{=}CH)_p(CH_2)_q$, $CO(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



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and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

67. The composition of claim 64 wherein the detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

68. A nucleic acid comprising a composition of claim 64.

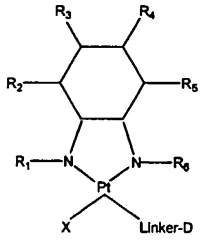
69. The nucleic acid of claim 68 wherein said composition forms a non-covalent adduct with said nucleic acid.

70. A probe comprising a composition of claim 64.

71. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 67 with said nucleic acid.

72. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 70 and detecting signal from said detectable marker.

73. A composition comprising the formula



wherein

R_1-R_6 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_7, -(C=O)OR_7, or -OCH_2(C=O)R_7 and a salt, wherein R_7 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

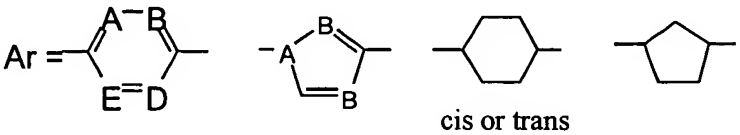
X is a leaving group; and

linker is a moiety joining a detectable marker, D, to the platinum ion.

74. The composition of claim 73, wherein said leaving group is selected from the group consisting of No_3, halogen, CN, $OCOR_8$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_8 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_7, -(C=O)OR_6, -OCH_2(C=O)R_7 and a salt.

75. The composition of claim 73 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH=CH)_mO(CH=CH)_p(CH_2)_q$, $CO(CH_2)_n(CH=CH)_m(CH_2)_p$,

$COAr(CH_2)_n(CH=CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

76. The composition of claim 73 wherein the detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

77. A nucleic acid comprising a composition of claim 73.

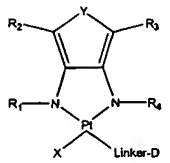
78. The nucleic acid of claim 77 wherein said composition forms a non-covalent adduct with said nucleic acid.

79. A probe comprising a composition of claim 73.

80. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 73 with said nucleic acid.

81. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 79 and detecting signal from said detectable marker.

82. A composition comprising the formula:



wherein

Y is selected from the group consisting of O, S, and C;

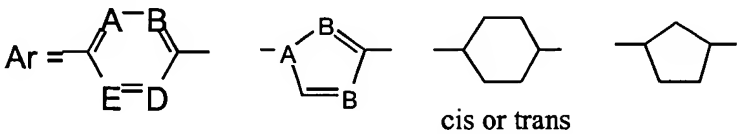
R_1-R_4 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_5, -(C=O)OR_5, or -$OCH_2(C=O)R_5$ and a salt, wherein R_5 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

X is a leaving group; and

linker is a moiety joining a detectable marker, D, to the platinum ion.

83. The composition of claim 82 wherein said leaving group is selected from the group consisting of No_3, halogen, CN, $OCOR_6$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_6 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_5, -(C=O)OR_5, -$OCH_2(C=O)R_5$ and a salt.

84. The composition of claim 82 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH=CH)_mO(CH=CH)_p(CH_2)_q$, $CO(CH_2)_n(CH=CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH=CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n, p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

85. The composition of claim 82 herein the detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

86. nucleic acid comprising a composition of claim 82.

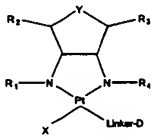
87. The nucleic acid of claim 86 wherein said composition forms a non-covalent adduct with said nucleic acid.

88. A probe comprising a composition of claim 82.

89. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 82 with said nucleic acid.

90. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 88 and detecting signal from said detectable marker.

91. A composition comprising the formula:



wherein

Y is selected from the group consisting of O, S, and C;

R_1-R_4 may be the same or different and are independently selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_5, -(C=O)OR_5, or -OCH_2(C=O)R_5 and a salt, wherein R_5 is a straight or branched, saturated or unsaturated, substituted or unsubstituted alkyl having 1-10 carbons;

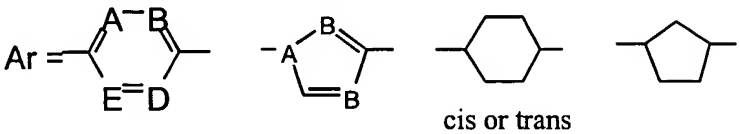
X is a leaving group; and

linker is a moiety joining a detectable marker, D, to the platinum ion.

92. The composition of claim 91, wherein said leaving group is selected from the group consisting of NO_3, halogen, CN, $OCOR_6$, OCO-Phenyl, $OCOCH_2OC(Phenyl)_3$, O-Trityl and 3,5-dimethyl-phenyl-4-sulfate, wherein R_6 is selected from the group consisting of H, methyl, benzyl, sulfonate, phosphonate, NO_2, CF_3, halogen, O-R_5, -(C=O)OR_5, -OCH_2(C=O)R_5 and a salt.

93. The composition of claim 91 wherein said linker is selected from the group consisting of: $(CH_2)n$, $(CH_2)_n(CH{=}CH)_mO(CH{=}CH)_p(CH_2)_q$, $CO(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $COAr(CH_2)_n(CH{=}CH)_m(CH_2)_p$, $NH_2(CH_2)_nQ$, $NH_2((CH_2)_nO)_m(CH_2)_tQ$, $NH_2(CH_2)_mAr(CH_2)_nQ$, wherein m, n, p, q and t are integers from 0 to 8, inclusive, and m, n,

p, q and t are the same or different, wherein Q is selected from the group consisting of CONH, NHCO, -S-S-, NHCSNH, NHCSO, wherein



cis or trans

and A, B, D, and E are the same or different and are selected from the group consisting of CH, N, O and S.

94. The composition of claim 91 wherein the detectable marker, D, is selected from the group consisting of a fluorophore, a chromophore, a radiolabel, an enzyme and an affinity tag.

95. A nucleic acid comprising a composition of claim 91.

96. The nucleic acid of claim 95 wherein said composition forms a non-covalent adduct with said nucleic acid.

97. A probe comprising a composition of claim 91.

98. A method of labeling a nucleic acid, said method comprising the step of contacting a composition of claim 91 with said nucleic acid.

99. A method of probing a nucleic acid array, said method comprising the steps of contacting said array with a probe of claim 97 and detecting signal from said detectable marker.

100. A method of making a platinum labeling compound that comprises a stabilizing bridge, the method comprising the step of contacting potassium tetrachloroplatinate (II) with an aliphatic diamine labeled with a detectable marker, wherein said contacting results in a cis-platinum dichloride labeling compound.

101. The method of claim 100 wherein said aliphatic diamine is a cycloaliphatic diamine.

102. The method of claim 101 wherein said cycloaliphatic diamine is a 1, 2-cycloaliphatic diamine.

103. The method of claim 101 wherein said cycloaliphatic diamine is a cyclohexyl diamine.

104. The method of claim 103 wherein said cyclohexyl diamine is a 1,2-cyclohexyl diamine.

105. The method of claim 100 wherein said contacting is performed in aqueous solution at a pH of about 1.5 to 5.5 and at a temperature of about 65°C.